

Graphene based Photonics Devices for Remote Sensing Applications Project

Completed Technology Project (2011 - 2012)



Project Introduction

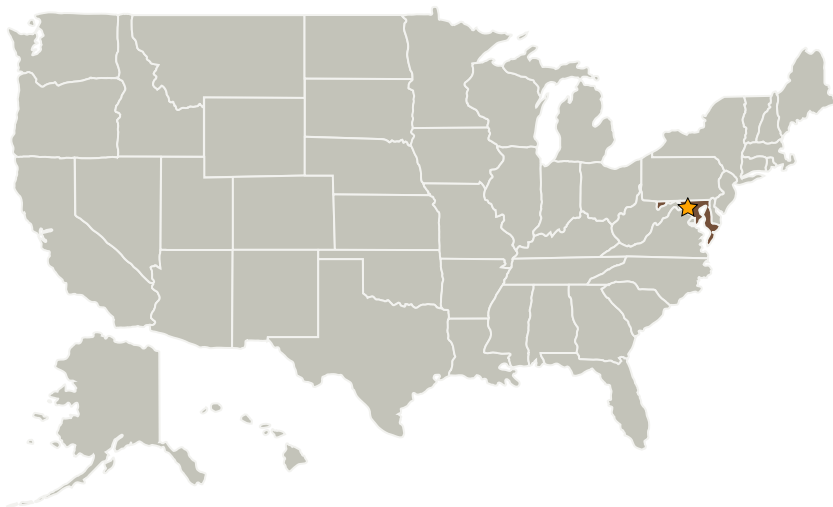
Fabrication of large area monolayer and multi-layer graphene samples of optical quality for mode locking process. Develop toolsets to realize the laser ranging instrument. Using graphene as a mean to generate mode locked laser pulses. Demonstrate mode locking process using graphene as saturable absorber.

Develop scalable graphene-based bolometer technology. Use low pressure chemical vapor deposition (LPCVD) technique to grow large area graphene. Develop a process to make saturable absorber with single layer, as well as multilayer graphene. Test and characterize graphene samples with in-house developed laser transmitter.

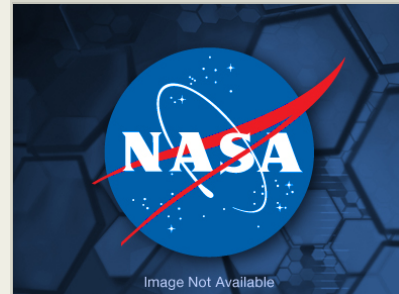
Anticipated Benefits

Applicable to various types of missions

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland



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Table of Contents

Project Introduction	1
Anticipated Benefits	1
Primary U.S. Work Locations and Key Partners	1
Project Website:	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	3
Technology Areas	3

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Primary U.S. Work Locations

Maryland

Project Website:

<http://sciences.gsfc.nasa.gov/sed/>

Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Independent Research & Development: GSFC IRAD

Project Management

Program Manager:

Peter M Hughes

Project Manager:

Terry Doiron

Co-Investigators:

Amil A Patel
Mahmooda Sultana
Mary J Li

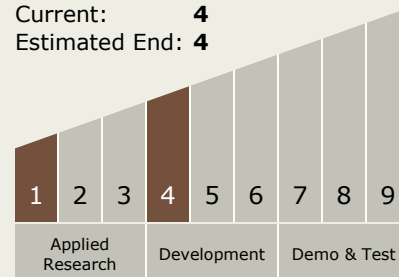
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Technology Maturity (TRL)

Start: **1**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.5 Lasers